

PQRST 05 PUZZLE COMPETITION

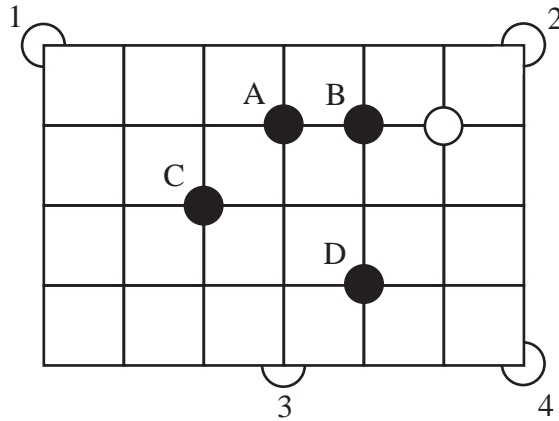
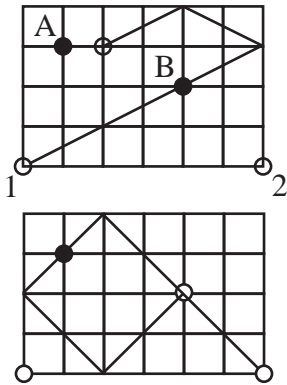
PUZZLE 01

45 points

Billiards

Put four black balls into four different baskets one by one, by hitting the white ball. Balls must always bounce from the border with mirror symmetry on an intersection point. When white ball hits a black ball, it replaces that black ball's location, and the black ball continues the motion. Black balls must never hit each other.

Example:



Answer key: Enter the four ball-basket pairs in order. For the example, the answer key would be: B1, A2

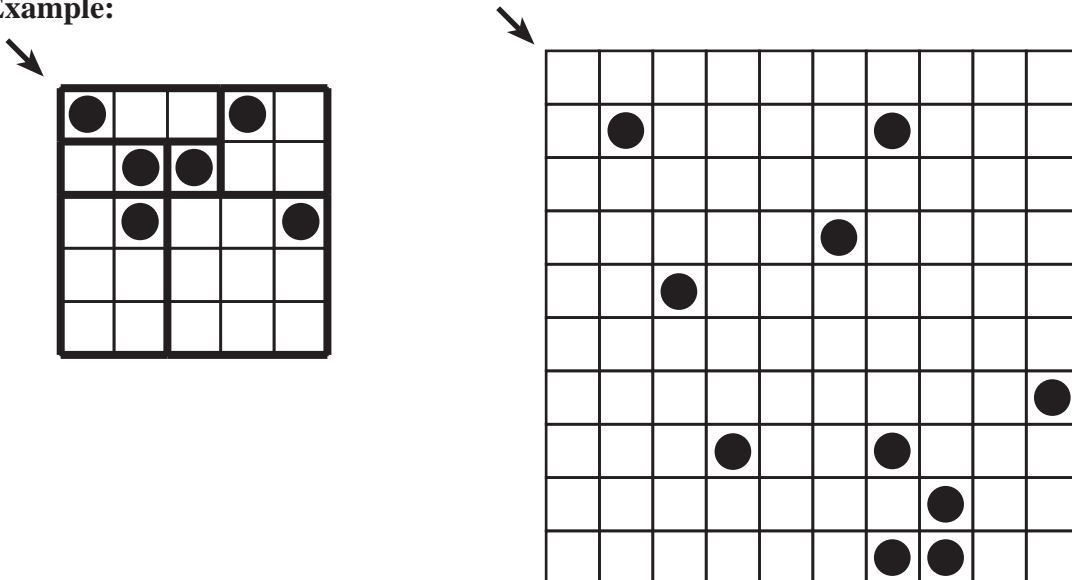
PUZZLE 02

45 points

Rectangle Corners

Divide the whole grid into ten nonoverlapping rectangles, so that each rectangle contains a circle in its corner. A corner is a cell neighbouring two adjacent edges. Each rectangle must be unique in dimensions from any other. That is 1x4 is different from 2x2, but 2x3 is same as 3x2.

Example:

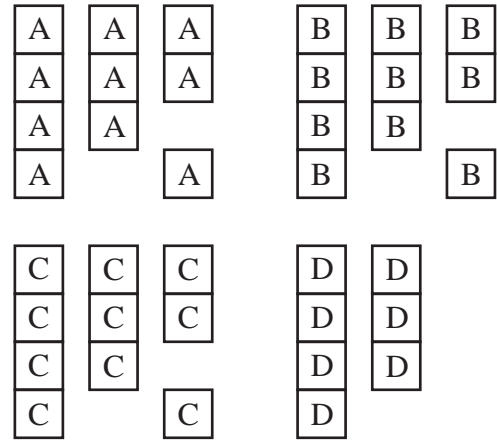
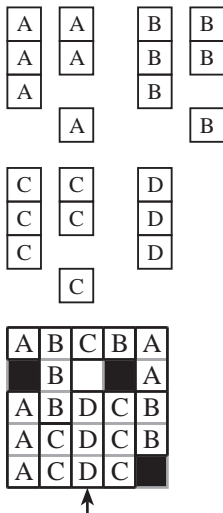


Answer key: Enter the contents of the diagonal indicated by the arrow from top to bottom, using the same number for the same rectangle. Start with 1 and increase the number when you come across a new rectangle. For the example, the answer key would be: 12333.

Parking Rules

Park all the car sets into the park space, so that cars from the same set don't touch each other, not even diagonally. There are four car sets: A, B, C and D. And each set has cars of different lengths. Cars can only enter the park space through the gate and can only move horizontally or vertically, but can not turn. You must park the cars in this order: 4-unit A, 3-unit A, 2-unit A, 1-unit A, 4-unit B, 3-unit B, ..., 4-unit D, 3-unit D. Once a car is parked it never moves again. Cars can not stop on or pass through the black blocks. You may touch any of the cars while parking a car.

Example:

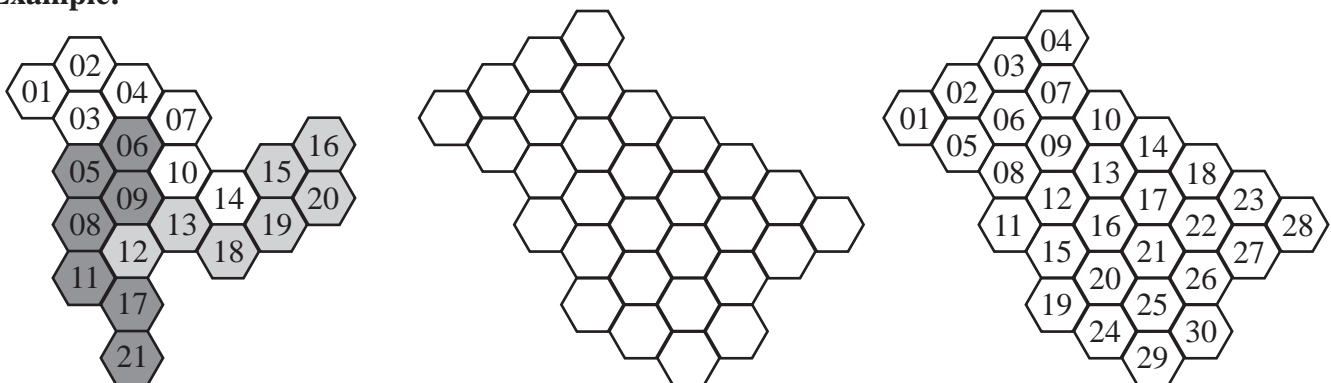


Answer key: First enter the contents of the third row from left to right, then enter the contents of the fourth row likewise. Use X for blank cells. For the example, the answer key would be: ABDCB, ACDCB.

Hex Dissection

Divide the figure into three identical regions following the grid lines. The regions must have the same size and shape, but may be rotated and/or reflected. Figure on the far right is for the answer key.

Example:



Answer key: Enter the numbers of the cells which are in the same region with 01, in increasing order. For the example, the answer key would be: 01, 02, 03, 04, 07, 10, 14.

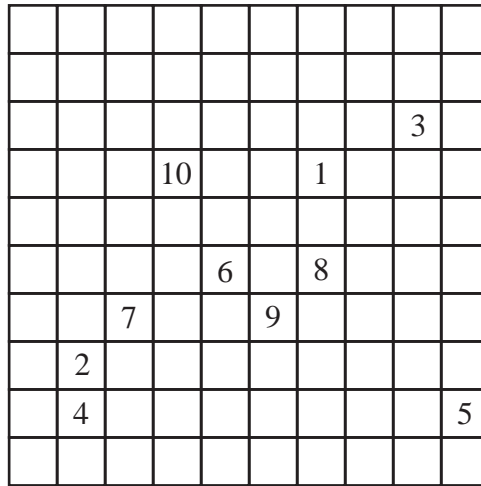
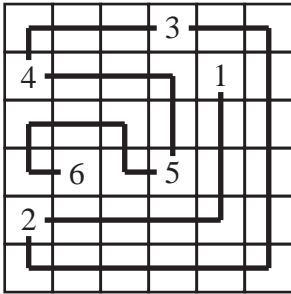
PUZZLE 05

65 points

Number Connect

Draw a continuous line that travels in order from 1 to 10. You can only move horizontally or vertically. Each cell of the grid must be visited exactly once. The line can not cross itself.

Example:



Answer key: Enter the number of cells on the line between 1 and 2, then between 2 and 3, so on until between 9 and 10. For the example the answer key would be 6, 12, 3, 4, 5.

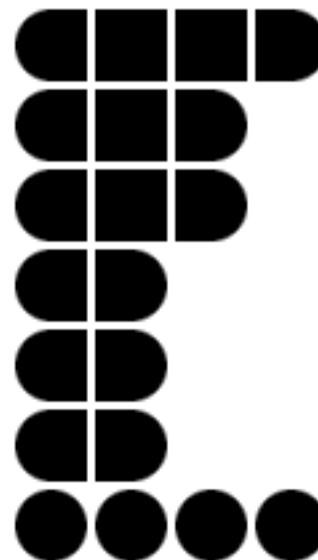
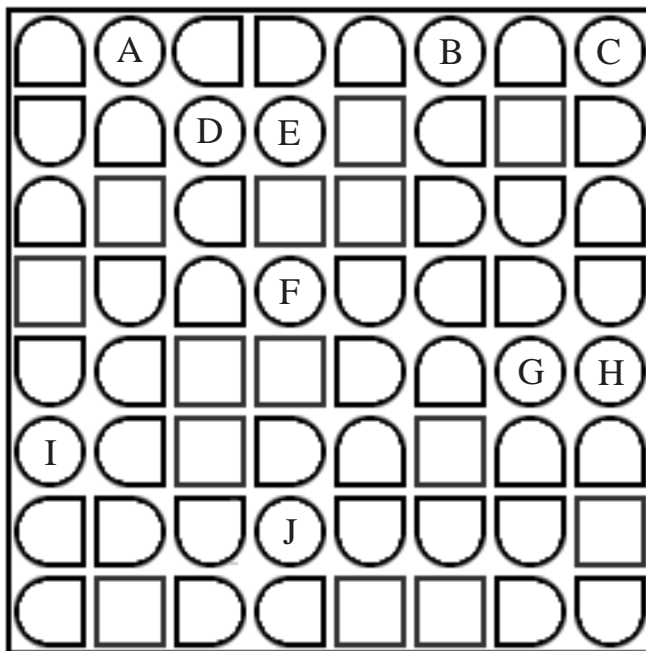
PUZZLE 06

(10 points penalty for a wrong answer)

70 points

Confused Battleships

In this variation of the Battleships puzzle, possible positions of the ships are given with some intersections. Find the position of the fleet in the grid. Ships do not touch each other, not even diagonally.



Answer key: Enter the four letters representing the four 1-unit submarines.

Pentolines

Place 12 different pentominoes in the grid. The numbers on the right and at the bottom show the number of line segments in each row or column. You may rotate and/or reflect the pentominoes.

Example:

The diagram shows a 5x5 grid with row counts on the right (1, 3, 3, 3, 3) and column counts on the bottom (2, 1, 3, 1). Twelve pentominoes are shown: F, I, L, N, P, T, U, V, W, X, Y, Z. Below this is a 6x10 grid with columns labeled A through J and rows labeled 1 through 6. The grid has row counts on the right (4, 4, 5, 4, 4, 5) and column counts on the bottom (3, 2, 5, 3, 6, 3, 3, 3, 3, 5).

Answer key: Enter the coordinates of the center cells of W, X, Y and Z pentominoes, in the A1, J6 form.

PUZZLE 08

(15+15 points penalty for wrong answers)

55+55 points

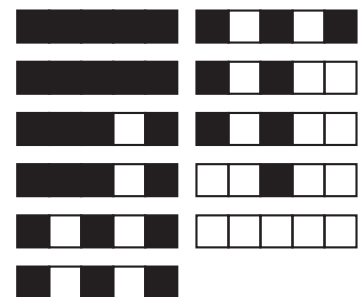
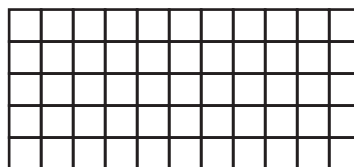
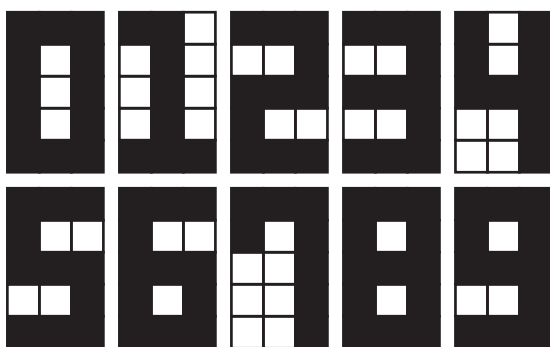
Digsaw

Put all of the 1x5 pieces into the grid to see a 3-digit number in the form shown below. You may rotate the pieces.

A: Find the maximum 3-digit number.

B: Find the minimum 3-digit number, without a leading zero.

Digit forms:



3-digit number form:



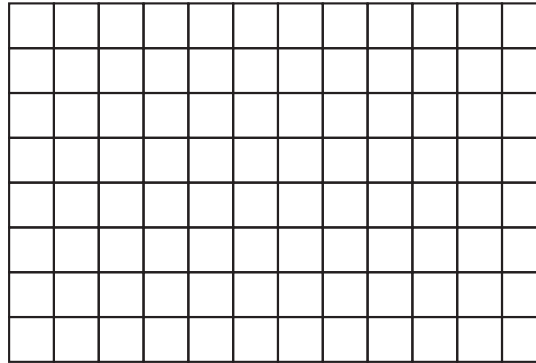
Answer key: Enter the numbers in this form: A:100, B:999

Crossnumber Totals

Enter letters into the grid so as to read numbers either from left to right or from top to bottom. Use whole numbers from ONE to NINETY NINE, and use each number at most once. There must not be any other word in the grid and all words must be connected to each other. When you finish, total of the horizontal numbers must be equal to the total of the vertical numbers. Numbers must be written adjoining like TWENTYONE or FORTYSIX. Your score is "total - 100" points.

Example:

		T			
T	W	E	L	V	E
W		N			
O					



Answer key: Enter your TOTAL first. Then enter the contents of the grid row by row. Use "." (point) for blank cells. For the example, the answer key would be: 12:...T..., TWELVE, W.N..., O.....

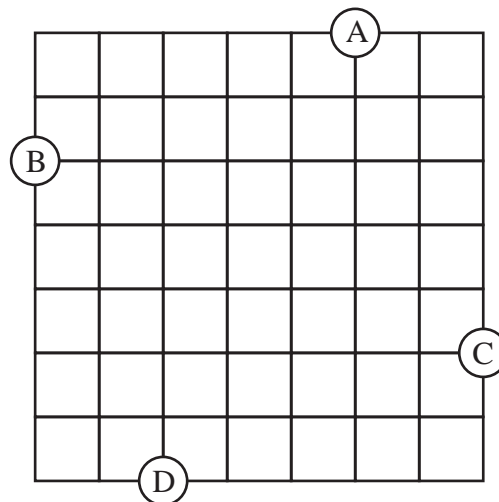
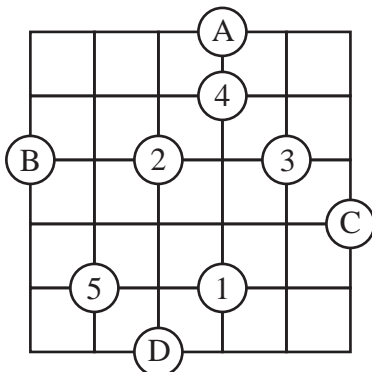
Observe Optimally

Put nine stones valued from 1 to 9 into nine intersection points. There are four observers: A, B, C and D. An observer sees a stone if that stone is not blocked by any other. Total value of the stones A sees is a, and the total value of the stones B sees is b, and so on. Your job is to minimize $6a+7b+8c+9d$.

Example:

- Here A sees 2, 3 and 4.
- B sees 1, 2, 4 and 5.
- C sees 1, 2, 3 and 5.
- D sees 1, 2, 3, 4 and 5.

$$\text{Total} = (6 \times 9) + (7 \times 12) + (8 \times 11) + (9 \times 15) = 361$$



Answer key: Enter your TOTAL first. Then enter the contents of the eight rows of the grid from top to bottom. Use "." (point) for blank intersection points. For the example, the answer key would be: 361: ...A..., ...4..., B.2.3.,C, .5.1..., ..D...

END